The vulnerable and the endangered: Carpet Python predation on a breeding female Carnaby's Black Cockatoo

Rick Dawson[1], Denis A Saunders[2] and Peter Mawson[1]

Corresponding author: Denis Saunders denis.saunders@csiro.au
[1]Department of Environment and Conservation, Locked Bag 104, Bentley DC, WA 6983, Australia;
Email: Rick.Dawson@dec.wa.gov.au
Email: Peter.Mawson@dec.wa.gov.au
[2]CSIRO Sustainable Ecosystems, GPO Box 284, Canberra ACT 2614, Australia.

Carnaby's Black Cockatoo *Calyptorhynchus latirostris* is found only in the southwest of Western Australia (WA) (Saunders 1990) and is listed as endangered by both the WA and Commonwealth governments. It is the subject of a recovery program (Cale 2003). One population of this species was studied in detail at Coomallo Creek in the northern wheatbelt of WA between 1969 and 1976 and then monitored at various intervals from 1977 to 1996 following the protocol explained by Saunders and Ingram (1987). In September and November 2009, the Coomallo Creek population was again monitored following the same protocol.

During the monitoring in 2009, the hollow in tree #15 was inspected on the 15th September. The hollow was in a live Wandoo *Eucalyptus wandoo*, with a diameter at breast height over the bark of 640mm. Up to the breeding season of 1996, this hollow had been used by Carnaby's Black Cockatoo during 5 of the 20 years the population was monitored. In September 2009, fresh chipping indicative of nest hollow preparation by a breeding pair of Carnaby's Black Cockatoo was noted around both entrances to the hollow and down into the chamber. The hollow floor was 550mm below the main entrance, which was 3.8m above the ground. The hollow was inspected again at 0955 on 10th November 2009. To one side of the hollow there was one small dead Carnaby's Black Cockatoo nestling. Curled up on the floor was a South-western Carpet Python *Morelia spilota imbricata* with a large bulge in the area of the stomach. Using the length of the nestling as a gauge, the python was approximately 200cm long and probably an adult female based on estimated snout-vent length and head length and width (Pearson et al. 2005). The size of the bulge was consistent with the python having eaten the adult female Carnaby's Black Cockatoo (Figure 1).

The python was inactive when the contents of the hollow were photographed. However it reacted when the dead nestling was scooped out of the hollow for a DNA sample. The snake attempted to escape by climbing part way up the hollow spout and then leaving via a 90mm wide split in the side of the spout. It was able to get about the first 300mm of its body through the split, but the bulge prevented it from getting any further. We left and returned at 0718 the next day. The python was curled in the floor of the hollow, still with a large bulge. It was still in the same position at 1700 that evening.

Recently hatched nestlings, the size of the one dead in the hollow, are brooded by the females, who only leave the hollow to be fed by their partners in the morning and evening (Saunders 1982). We can only speculate when the python caught the female, but given the recent death of the nestling and the size of the bulge in the snake, it was probably within 24 hours of us having inspected the hollow.

During the course of monitoring of the black cockatoo population at Coomallo Creek, over 200 individual hollow trees were examined. In the period 1969 to 1976, active hollows were visited up to 25 times in a breeding season and subsequently, each tree was visited twice per season. Accordingly, well over 4000 hollow inspections took place during the study. The only other record of a Carpet Python in a hollow in the area was during the breeding season of 1969. The python was curled up on the floor of a hollow in tree #80, but there was no nesting attempt by Carnaby's Black Cockatoo in the hollow at that time. This was the only recording of a Carpet Python in the study area until the monitoring trip in 2009.

Figure 1. Floor of hollow in tree #15 with a Carpet Python and a dead Carnaby's Black Cockatoo nestling (yellow material on side of the hollow floor seen at top of the photograph) on 10th November 2009. The large bulge of a female adult Carnaby's Black Cockatoo the python had eaten can be seen clearly in the centre of the photograph. Photo, R. Dawson.

Two other Carpet Pythons were recorded during the November trip. The second was also on the 10th November 2009. It was freshly dead, having been decapitated by a machine harvesting canola. Minus the head, the animal was 900mm long. We assume that the snake had reared up as the harvester appeared, as its head was removed neatly and the rest of the body was untouched. The farmer was not aware that the snake was in his path, as we discussed the incident with him. The third python was seen at 2030 on 12th November crossing the main farm access road.

The South-western Carpet Python has been extensively studied (Pearson 2002; Pearson et al. 2002, 2003, 2005). Its preferred habitat in the wheatbelt is Wandoo woodland (Figure 2), where it is often found in hollows in trees. The species has undergone a major decline in the wheatbelt as a result of clearing of native vegetation and is considered a "specially protected taxon" under WA State legislation on the basis of its decline in the wheatbelt (Pearson et al. 2005).

Pearson et al. (2002) reported on the diet of the South-western Carpet Python. Birds are part of its diet with the body mass of species reported eaten ranging from 8g to 198g (Pearson et al. 2002). The largest birds were the Brush Bronzewing *Phaps elegans* (198g), the Buff-banded Rail *Gallirallus philippensis* (182g), the Laughing Turtledove *Streptopelia senegalensis* (body mass range 73-132g; data from Saunders and de Rebeira 1993) and the Port Lincoln Parrot *Barnardius zonarius* (95-180g; data from Saunders 2009). Adult female Carnaby's Black Cockatoo have a mean body mass of 668g with a range of 560 to 790g (Saunders 1974). This is considerably larger than the birds reported by Pearson et al. 2002.

Figure 2: Wandoo woodland around tree #15 (in the centre of the photograph) is preferred habitat of the Carpet Python. The sheet of metal on the side of the tree is a repair to make the hollow suitable for use by cockatoos (Photograph R. Dawson).

Acknowledgements:

We are grateful to James and Rebecca Raffan for permission to work on their property and for providing accommodation and to Professor Rick Shine for constructive comments on an earlier draft of this paper. The field work during which these observations were made was conducted under appropriate ethics (DEC AEC 32/2008) and Wildlife Conservation Regulation permits from the Western Australian Department of Environment and Conservation.

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